

## IN THE CLAIMS

Claim 55 (cancelled)

Claim 56 (New): An isolated strain of *Bifidobacterium* UCC 35624 [NCIMB 41003].

Claim 57 (New): The strain of claim 56 in the form of viable cells.

Claim 58 (New): The strain of claim 56 in the form of non-viable cells.

Claim 59 (New): A formulation comprising the strain of claim 56.

Claim 60 (New): The formulation of claim 59 further comprising at least one further strain of *Bifidobacterium*.

Claim 61 (New): The formulation of claim 59, further comprising a probiotic material.

Claim 62 (New): The formulation of claim 59, further comprising a prebiotic material.

Claim 63 (New): The formulation of claim 59, further comprising a strain of *Lactobacillus salivarius*.

Claim 64 (New): The formulation of claim 63, wherein the strain of *Lactobacillus salivarius* is in the form of viable cells.

Claim 65 (New): The formulation of claim 63, wherein the strain of *Lactobacillus salivarius* is in the form of non-viable cells.

Claim 66 (New): The formulation of claim 63, wherein the strain of *Lactobacillus salivarius* is isolated from a resected and washed human gastrointestinal tract and is significantly

immunomodulatory following oral consumption in humans.

Claim 67 (New): The formulation of claim 66, wherein the strain of *Lactobacillus salivarius* inhibits the growth of Gram positive bacteria, Gram negative bacteria, or both.

Claim 68 (New): The formulation of claim 67, wherein the strain of *Lactobacillus salivarius* secretes a product having antimicrobial activity into a cell-free supernatant that is produced only by growing cells and is destroyed by proteinase K and pronase E, wherein the inhibition of growth and antimicrobial activity are maintained in the presence of physiological concentrations of human bile and human gastric juice.

Claim 69 (New): The formulation of claim 63, wherein the strain of *Lactobacillus salivarius* is *Lactobacillus salivarius* strain UCC 118 [NCIMB 40829] or a mutant or a variant thereof.

Claim 70 (New): The formulation of claim 69, wherein the mutant is a genetically modified mutant.

Claim 71 (New): The formulation of claim 69, wherein the variant is a naturally occurring variant.

Claim 72 (New): The formulation of claim 59, further comprising an ingestible carrier.

Claim 73 (New): The formulation of claim 72, wherein the ingestible carrier is a pharmaceutically acceptable carrier.

Claim 74 (New): The formulation of claim 73, wherein the pharmaceutically acceptable carrier is in the form of a capsule, a tablet, or a powder.

Claim 75 (New): The formulation of claim 72, wherein the ingestible carrier is a food product.

Claim 76 (New): The formulation of claim 75, wherein the food product is acidified milk, a yogurt, a frozen yogurt, a milk powder, a milk concentrate, a cheese spread, a dressing, or a beverage.

Claim 77 (New): The formulation of claim 59, further comprising a protein, a peptide, a lipid, a carbohydrate, a vitamin, a mineral, or a trace element.

Claim 78 (New): The formulation of claim 77, wherein the protein or the peptide is rich in glutamine, glutamate, or both.

Claim 79 (New): The formulation of claim 59, wherein the *Bifidobacterium* is present at more than  $10^6$  cfu per gram of the formulation.

Claim 80 (New): The formulation of claim 59, further comprising an adjuvant.

Claim 81 (New): The formulation of claim 59, further comprising a bacterial component.

Claim 82 (New): The formulation of claim 59, further comprising a drug entity.

Claim 83 (New): The formulation of claim 59, further comprising a biological compound.

Claim 84 (New): The formulation of claim 59, wherein the formulation is suitable for oral administration to a subject.

Claim 85 (New): A foodstuff comprising the strain of *Bifidobacterium* of claim 56.

Claim 86 (New): A foodstuff comprising the formulation of claim 59.

Claim 87 (New): A pharmaceutical composition comprising the *Bifidobacterium* strain of claim 56 and a pharmaceutically acceptable carrier.

Claim 88 (New): A pharmaceutical composition comprising the formulation of claim 59 and a pharmaceutically acceptable carrier.

Claim 89 (New): A mutant of the strain of claim 56 which mutant is significantly

immunomodulatory following oral consumption in humans.

Claim 90 (New): A mutant as claimed in claim 89 wherein the mutant is a genetically modified mutant.

Claim 91 (New): A variant of the strain of claim 56, which variant is significantly immunomodulatory following oral consumption in humans.

Claim 92 (New): The variant of claim 91 wherein the variant is a naturally occurring variant.

Claim 93 (New): A strain of *Bifidobacterium* isolated from resected and washed human gastrointestinal tract which is significantly immunomodulatory following oral consumption in humans as evidenced by decreasing expression of TNF $\alpha$  or IL-8 when measured in a system comprising cells which interact with the immune system and cells of the immune system.

Claim 94 (New): The strain of claim 93 wherein the cells which interact with the immune system are epithelial cells.

Claim 95 (New): The strain of claim 93 wherein the cells which interact with the immune system and the immune system cells are of matched origin.

Claim 96 (New): The strain of claim 93 wherein the cells which interact with the immune system are of gastrointestinal, respiratory or genitourinary origin.

Claim 97 (New): The strain of *Bifidobacterium* of claim 93 wherein the cells of the immune system are of gastrointestinal, respiratory or genitourinary origin.

Claim 98 (New): The strain of claim 93 wherein the strain is a strain of *Bifidobacterium longum*.

Claim 99 (New): The strain of claim 93 which has significant anti-inflammatory effect following oral consumption in humans.

Claim 100 (New): The strain of claim 93 which has inhibitory activity against a broad range of Gram positive and Gram negative bacteria.

Claim 101 (New): The strain of claim 93 wherein the strain exhibits a broad-spectrum of activity against bacteria including *Staphylococcus*, *Pseudomonas*, *Coliform* and *Bacillus* species.

Claim 102 (New): A strain of *Bifidobacterium* isolated from resected and washed human gastrointestinal tract which is capable of combating the effects of inflammatory bowel disease, as measured by measuring a reversal of a wasting disease induced in severe combined immunodeficient recipient mice (SCID) which have been administered purified CD4<sup>+</sup>, CD45RB<sup>high</sup> T cells.

Claim 103 (New): The strain of *Bifidobacterium* of claim 93, wherein the strain is in the form of viable cells.

Claim 104 (New): The strain of *Bifidobacterium* of claim 93, wherein the strain is in the form of non-viable cells.

Claim 105 (New): A formulation comprising the strain of *Bifidobacterium* of claim 93.

Claim 106 (New): The formulation of claim 105, which comprises two or more strains of *Bifidobacterium*.

Claim 107 (New): The formulation of claim 105, further comprising a probiotic material.

Claim 108 (New): The formulation of claim 105, further comprising a prebiotic material.

Claim 109 (New): The formulation of claim 105, further comprising a strain of *Lactobacillus salivarius*.

Claim 110 (New): The formulation of claim 109, wherein the strain of *Lactobacillus salivarius* is in the form of viable cells.

Claim 111 (New): The formulation of claim 109, wherein the strain of *Lactobacillus salivarius* is in the form of non-viable cells.

Claim 112 (New): The formulation of claim 109, wherein the strain of *Lactobacillus salivarius* is isolated from a resected and washed human gastrointestinal tract and is significantly immunomodulatory following oral consumption in humans.

Claim 113 (New): The formulation of claim 112, wherein the strain of *Lactobacillus salivarius* inhibits the growth of Gram positive bacteria, Gram negative bacteria, or both.

Claim 114 (New): The formulation of claim 113, wherein the strain of *Lactobacillus salivarius* secretes a product having antimicrobial activity into a cell-free supernatant that is produced only by growing cells and is destroyed by proteinase K and pronase E, wherein the inhibition of growth and antimicrobial activity are maintained in the presence of physiological concentrations of human bile and human gastric juice.

Claim 115 (New): The formulation of claim 109, wherein the strain of *Lactobacillus salivarius* is *Lactobacillus salivarius* strain UCC 118 [NCIMB 40829] or a mutant or a variant thereof.

Claim 116 (New): The formulation of claim 115, wherein the mutant is a genetically modified mutant.

Claim 117 (New): The formulation of claim 115, wherein the variant is a naturally occurring variant.

Claim 118 (New): The formulation of claim 105, further comprising an ingestible carrier.

Claim 119 (New): The formulation of claim 118, wherein the ingestible carrier is a pharmaceutically acceptable carrier.

Claim 120 (New): The formulation of claim 119, wherein the pharmaceutically acceptable carrier is in the form of a capsule, a tablet, or a powder.

Claim 121 (New): The formulation of claim 118, wherein the ingestible carrier is a food product.

Claim 122 (New): The formulation of claim 121, wherein the food product is acidified milk, a yogurt, a frozen yogurt, a milk powder, a milk concentrate, a cheese spread, a dressing, or a beverage.

Claim 123 (New): The formulation of claim 105, further comprising a protein, a peptide, a lipid, a carbohydrate, a vitamin, a mineral, or a trace element.

Claim 124 (New): The formulation of claim 123, wherein the protein or the peptide is rich in glutamine, glutamate, or both.

Claim 125 (New): The formulation of claim 105, wherein the *Bifidobacterium* is present at more than  $10^6$  cfu per gram of the formulation.

Claim 126 (New): The formulation of claim 105, further comprising an adjuvant.

Claim 127 (New): The formulation of claim 105, further comprising a bacterial component.

Claim 128 (New): The formulation of claim 105, further comprising a drug entity.

Claim 129 (New): The formulation of claim 105, further comprising a biological compound.

Claim 130 (New): The formulation of claim 105, wherein the formulation is suitable for oral administration to a subject.

Claim 131 (New): A foodstuff comprising the strain of *Bifidobacterium* of claim 93.

Claim 132 (New): A foodstuff comprising the formulation of claim 105.

Claim 133 (New): A pharmaceutical composition comprising the *Bifidobacterium* strain of claim 93

and a pharmaceutically acceptable carrier.

- Claim 134 (New): A pharmaceutical composition comprising the formulation of claim 105 and a pharmaceutically acceptable carrier.